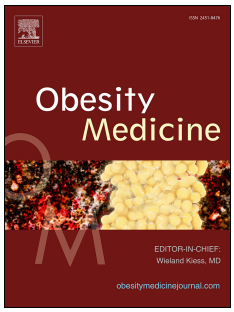
Accepted Manuscript



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PII: S2451-8476(16)30024-0

DOI: 10.1016/j.obmed.2016.09.001

Reference: OBMED 21

To appear in: *Obesity Medicine*

Received Date: 29 August 2016

Accepted Date: 20 September 2016

Please cite this article as: Klingemann, H., Bucher, S., Buri, C., Bolliger-Salzmann, H., Laederach, K., Coping with obesity in Switzerland through self-change and professional help, *Obesity Medicine* (2016), doi: 10.1016/j.obmed.2016.09.001.

Coping with obesity in Switzerland through self-change and professional help

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Acknowledgments

This study was supported by Switzerland's Federal Office of Public Health, Contract No. 09.006168/204.0001/-674.

Special thanks go to Katharina Liewald who compiled systematic background information on current treatment options as background information for the current study

Abstract

(Background and Objectives) This interdisciplinary study investigated the development of behavioral changes in individuals who were able to achieve successful long-term behavior modification (weight loss and maintenance) compared to individuals unable to lose substantial weight or to prevent weight re-gain after weight loss. The participants were recruited through media calls and interviewed in a two-step selection telephone interview to ensure quota requirements. This is the first time that such a large group of individuals who have overcome their obesity problem without professional help has been studied in Switzerland. The results provide valuable information on problem-solving strategies that could be supported at a professional level and contribute to ensuring that offers of help with obesity are both customizable and cost-efficient. These data fill a major gap in research because little is known about the "natural course of obesity." In addition, the results will be used to prepare a follow-up project to examine the effectiveness of different interventions by applying useful everyday weight-stabilizing strategies.

(Methods) The study participants were recruited through various media calls for more than 8 months. They were questioned using a two-step questionnaire via telephone interviews. The interviews were conducted between November 2010 and October 2011 and were based on age-, sex- and weight loss-related quotas. The 240 respondents were grouped into four categories: successful self-changers (SSC), unsuccessful self-changers (USC), successful help-seekers (SHS) and unsuccessful help-seekers (UHS). Questions included anthropometric parameters, sociodemographic variables and educational and professional status.

(Results) The main results show that self-change is possible and potentially common for people with obesity. Moreover, we demonstrated that the profile of coping and maintenance strategies is largely similar for individuals who seek help and self-changers who do not seek help. Based on the sequence of self-change processes, the motivation stage shows that both help-seekers and self-changers are influenced by motivating factors during the change process. Concerning coping strategies, we found that seeking outside support does not uniformly result in greater health literacy than similar methods applied by self-changers. With regard to the maintenance of weight loss, both groups showed 5 stabilization parameters: characteristics of the (modified) success method, a long-term awareness of discipline and

determination, constant vigilance and self-monitoring, not jeopardizing what has been achieved and the perception of positive consequences felt by the individual and encountered at a social level. In cases of failed stabilization efforts, problems involving comorbidity and social relationships played a major role.

(Outlook) The similarities in coping methods adopted by help-seekers and self-changers indicated that the same determinants are relevant for individual change processes. Consequently, these factors are influenced by professionals but are also found outside of clinical therapy or advice. The coping methods observed in both groups correspond closely to the recommendations from major meta-analyses, i.e., flexible management of food intake, a healthy and balanced diet, sufficient exercise and an intrinsic motivation to control body weight. Thus, all respondents are in possession of the appropriate knowledge, regardless of whether they take advantage of professional advice. Furthermore, future research in this field should apply the successful non-professional ideas and strategies for weight stabilization elucidated by this study.

1. The burden of obesity – treatment response and self-change

As observed in the WHO report dating from 2000, entitled “Obesity, preventing and managing the global epidemic,” the condition of being ‘overweight’ (BMI 25-29.9) and ‘obese (BMI >30) represents an increasingly serious problem for public health (2000; Wadden, Brownell et al., 2002). The “Global report on diabetes” published by the WHO in 2016 reached the following conclusion: “Globally, an estimated 422 million adults were living with diabetes in 2014, compared to 108 million in 1980. The global prevalence (age-standardized) of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population. This reflects an increase in associated risk factors, such as being overweight or obese. Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries” (WHO, 2016). Based on the Swiss Health Survey carried out in 2012, it is estimated that 39% of men and 23% of women in Switzerland are overweight, and the obesity rates for men and women are 11% and 9%, respectively (Swiss Federal Statistical Office, 2014). In 2012, 41% of people in Switzerland over the age of 15 years were either overweight or obese, representing a rise of 4% from 2007 and 11% from 1992 (Swiss Federal Office of Public Health, 2014, p. 36). Although Switzerland has seen an increase in the number of inhabitants with elevated body weight (overweight and obesity), a study of the “Organization for Economic Co-operation and Development”, OECD (2010) reported that the country remained below the OECD mean, which is in excess of 50%. In the case of children and adolescents in Switzerland, 3-20% are either overweight or obese, depending on their sex, age group or region (Suter & Ruckstuhl, 2006). On average, this value has remained relatively stable at 19% for a number of years (Swiss Federal Office of Public Health, 2014, p. 39). Eight percent of children in Switzerland aged 11 to 15 years are overweight or obese, which is below the mean (13.3%) of the corresponding OECD age group (OECD, 2010). During the academic year of 2014/15, there was a slight decrease in the mean rate for all children and adolescents to 17.3% (largely due to children attending nursery school and those with a migrant background) (Gesundheitsförderung Schweiz, 2016). Despite this positive interim result, weight problems represent a huge burden of cost for society (Schmid, Schneider et al., 2005). The direct and indirect costs for overweight and obese residents of Switzerland have grown from CHF 2.7 billion in 2002 to CHF 8 billion in 2012 (Swiss Federal Office of Public Health, 2014, p. 46). Detailed estimates from 2007 showed that the total costs associated with being overweight or obese are CHF 5.8 billion per year (direct medical costs of CHF 3.83 billion, i.e., approximately 7% of the total health costs of CHF

52.7 billion and indirect costs of CHF 1.97 billion) (Schneider et al., 2009).

Despite this trend, an OECD report revealed that there has been insufficient action in regard to promoting health and prevention (Sassi, 2010). The German Obesity Association stated, "The whole of society needs to make an effort to counteract the increase in weight we are seeing in overweight or obese people" (German Obesity Association/Deutsche Adipositas-Gesellschaft, 2013, p. 28).

Current debates are addressing many questions, such as the role of public awareness campaigns, the introduction of a 'fat tax' and a prohibition of vending machines selling sugary drinks in schools and work environments. Recent approaches aimed at weight reduction are focused on the provision of information and instructions and, in particular, aspects related to self-help and improvement in self-efficacy. To date, the latter has been all but ignored, including its use in sociological explanatory models (Schmidt-Semisch & Schorb, 2008).

The significant burden of obesity on public health standards is not properly addressed by the available offers of advice and help, which are largely still in their initial stages (overview provided by Wilding, 2007). The most developed form of support is self-help groups, although their effectiveness has not yet been fully investigated. One study compared the long-term effects of organized self-help and structured commercial programs with clinical controls on weight loss (Heshka et al., 2003). After two years, the reduction in weight, BMI and waist measurement of people in commercial programs was only slightly greater than those with organized self-help. Tsai and Wadden (2005) investigated the success rate of various commercial weight loss programs based on self-help. With the exception of Weight Watchers, there was virtually no evidence of any benefits from major commercial programs or organized self-help. As illustrated by the Suisse Balance report dealing with the effectiveness of interventions in obesity, the role of self-help measures has been largely ignored in Switzerland (Stöckli & Keller, 2002; Stöckli & Keller, 2003).

Based on a comparison of epidemiological data with the number of people who take advantage of professional help, self-help groups and offers of professional support appear to reach only a small percentage of the target population (Swiss Federal Statistical Office, 2008). Thus, studies investigating the success and failure of intervention programs exclusively deal with a minority of affected individuals while dismissing the natural progression and coping strategies of the vast majority of people who do not undergo professional treatment. However, it is this potential group of self-changers that is relevant in public health, i.e., untreated individuals suffering from obesity who fail to take advantage of self-help groups, walk-in

advice or clinical treatment centers. Several studies have demonstrated that professional help is not sought until the late stages of the condition; for example, once eating disorders, such as binge eating or severe psychopathological problems, have developed (Fitzgibbon, Stolley et al., 1993). The concentration of the research upon severe cases masks the less serious cases, which on the other hand entail a much higher economic burden on the whole society. In addition, numerous studies have confirmed, that it is very common for individuals to cope with a wide range of problem behaviors, such as addiction (substance- and non-substance related), speech disorders and adolescent deviance on their own, without professional help, particularly with minor and moderately severe cases (Klingemann & Sobell 2007).

Cases of 'spontaneous recovery' have been demonstrated for eating disorders. In the early 1980s, Schachter examined the phenomenon of self-cure for smoking and obesity (Schachter, 1982). This model of behavioral changes was used as the theoretical point of reference in numerous studies (cf. Prochaska & Norcross, 1992; Andres et al., 2007). For example, Polivy conducted American surveys, in which 80% of respondents managed to reduce their weight by more than 10% over a period of 5 years without recourse to treatment (Polivy, 2006). Polivy assumed that an "autonomous, self-motivated cognitive style" was a key predictor for weight management (Polivy, 2006; Teixeira et al., 2005). Tinker and Tucker used a life-event questionnaire to investigate the situational environment that best helped those with obesity to cope with their condition without treatment. These authors highlighted the similarities between recommendations made in the context of professional advice and problem-solving strategies that spontaneously develop (e.g., reducing the speed of eating, exercise, modified dietary habits and health literacy) (Tinker & Tucker, 1997a). On the other hand, the article "Undereating or eliminating overeating" notes that efforts to prevent overeating often revolve solely around weight and curbing the amount eaten while tending to ignore the emotional/external overeating behaviors and cues (Herman & Polivy, 2008). Vandereycken's overview of the literature refers to cases of self-recovery from bulimia nervosa and anorexia nervosa (Vandereycken, 2012, p. 88f.).

There has been a lack of research into spontaneous recovery and the natural history of eating disorders. Therefore, we fully support the observations reported more than a decade ago by Phelan et al. (Phelan, Hill et al., 2003): "Little is known about the natural history of weight change among people who are successful at losing weight" (p. 1079). Our project performed in Switzerland is the first to investigate a large group of people who have overcome their obesity problem without professional help. We also compared this group to help-seekers. Our exploratory, semi-qualitative study, which strives for dimensional and typological

clarification, is based on the following research questions:

- What is the profile of help-seeking behavior among help-seekers in the context of the available help, and what role does the severity of the problem play?
- What motivations characterize the willingness to change?
- Which everyday techniques and coping strategies are employed by people suffering from obesity?
- Which methods of self-monitoring and progress observation are used?
- What strategies aimed at maintaining motivation levels are adopted, and what abilities for dealing with relapses and the long-term stabilization of weight loss are applied?
- What subjective causal attributes of success or failure play a role in the change process?
- Can group-specific factors be observed in the change process?

2. Methods – sampling

(Target groups) The present study compared the progression of behavioral changes in obese people who successfully lost weight and maintained the loss (problem-solving group [PG]) with overweight individuals who were unable to attain any substantial long-term weight loss (for the definition of 'long-term,' see Stevens, McClain et al., 2006) (control group [CG]). The recruitment did not occur through treatment providers; thus, both groups included people who had taken advantage of offers of help and individuals who had not utilized any professional help but rather developed their own everyday strategies ('natural history' – 'self-change'). Therefore, our approach addressed the entire intervention continuum from spontaneous recovery to surgical intervention.

(Media recruitment and selection criteria) The recruitment strategy of this project used the previous research on self-change in the field of addiction. The calls were organized in the German speaking media of Switzerland and formulated in a frank and open manner. The calls asked potential applicants to explain their problem-solving skills (PG) or their 'problem expertise' (CG). The advertisement provided the telephone number of an answering machine, which provided brief information about the project and invited interested applicants to register their contact details for an interview. For successful recalls, a 40 min telephone interview consisting of the screening section of the questionnaire and clarification of the inclusion criteria was conducted. If the candidates fulfilled the criteria, the call continued with the main section of the questionnaire, which dealt with coping behavior/weight management (problem-

solving strategies, e.g., use of professional help/self-help groups and a brief description of any self-change). The telephone interviews were conducted over a period of 12 months (2010/2011) by the CATI Laboratory of the Institute of Social and Preventive Medicine (ISPM) at the University of Bern.

People who managed to reduce their life-time maximum weight by at least 10 percent and had maintained their weight loss for at least three years were assigned to the group 'Problem solved' (PG). All other individuals were assigned to the control group (CG). The participants were asked about the particular circumstances surrounding their successful long-term weight loss (PG) or the most recent attempt in which they temporarily succeeded in losing weight (CG). This inquiry included the estimation and utilization of offers of help and the application of everyday strategies.

The definition of success in the present study was based on a number of considerations. Curing obesity cannot be defined by a percentage-based weight loss alone (5% according to the American Institute of Medicine), but this measure inevitably implies long-term success regarding weight stabilization. A previous study (Ayyad & Andersen, 1994) reported that the number of treated help-seekers who maintained their weight loss for a period of 3 years or longer was 20-30%. The media used in our project did not mention any specific figures in this regard. This strategy made it possible to establish the general knowledge of terms, such as 'weight problems,' 'successful weight loss' and 'overweight,' irrespective of the definitions used by the professionals. In the screening interview, the label 'problem solved' was restricted to people who claimed to have had a BMI of over 30 kg/m^2 at some time in their lives and experienced a stable weight loss of at least 10% for at least three years immediately preceding the time of interview. However, practical experience with the first interviews revealed that the BMI of 30 kg/m^2 was too high. Thus, the cut-off value was reduced to 28 kg/m^2.

The term 'self-changers' refers to respondents who fulfilled the defined success criteria without using external help to gain control of their weight problems.

Given the general knowledge of obesity, the following quota features were selected for the study: sex (1:1 male to female ratio), age (18-30 years vs. older study participants) and severity of the problem. For problem severity, the division into subgroups was based on WHO criteria (WHO, 2000, p. 9, Table 2.1): class I obesity (BMI = 30 to 35 kg/m^2), class II obesity (BMI between 35 to 40 kg/m^2) and class III obesity (BMI over 40 kg/m^2). The age groups were based on findings that the number of obese people in the United States in the age group of 5 - 24 years doubled between 1973 and 1994 (WHO, 2000, p. 32). By controlling key

determinants of obesity, this quota design allowed us to make an exploratory group comparison without striving for statistical representativeness of the relevant total populations. For the target study group, we assumed that more severe cases tended to be reached through media recruitment than representative telephone sampling, as evidenced by comparable studies dealing with alcohol use (Rumpf et al., 2000). The use of a quota design enables the study of maximum variance in relevant combinations of main subgroup features and the dynamic mapping of these features at a typological/qualitative level.

3. Results

3.1 Response rate and study groups

The media campaign resulted in a total of 402 telephone calls. The recruitment channels reflected a wide variety of media and a diverse readership. Telephone interviews were not conducted for 162 telephone callers due to a) insufficient availability of the caller; b) problems with hearing, speech or language; c) the absence of attempts to lose weight; or d) a large number of callers did not suffer from obesity to the extent specified (n=121). After performing the screening section of the telephone interview with an initial sample of 240 people, 107 were disqualified based on the inclusion criterion of 'Problem-Solving' (continuous maintenance of a weight below 90% of the subject's maximum lifetime weight during the three years preceding the interview) because they had only just begun to lose weight. Thus, "analysis sample 1" consisted of 133 respondents.

It was not possible to meet the quota for age because too few young adults responded to the diverse media advertisements. At only 7% (n=16), the age group of 18-29 years was poorly represented in the initial sample (n=240, with women comprising 52%). The average age was 51 years (SD=14.3). The failure to complete all calls in the younger age group resulted in 114 people instead of the desired 120 for the second interview phase of the semi-qualitative survey ("analysis sample 2").

The greater analysis sample available was subsequently used to provide the widest possible basis for observations and conclusions. The respondents were subdivided into four groups for the following comparative analyses based on the variables of recourse to help and successful, lasting weight loss (analysis sample 1; Table 1):

SSC: Successful self-changers (n=37) are respondents who demonstrated a successful weight loss of 10% and maintained it for a period of 3 years with no professional help (e.g., nutritionists, coaches and physicians).

USC: Unsuccessful self-changers (n=28) are respondents who, without professional help, either failed to demonstrate a weight loss of 10% or failed to maintain this loss for a period of 3 years.
SHS: Successful help-seekers (n=24) are respondents who demonstrated a successful weight loss of 10% and maintained it for a period of 3 years with professional help.
UHS: Unsuccessful help-seekers (n=44) are respondents who, with professional help, either failed to demonstrate a weight loss of 10% or failed to maintain this loss for a period of 3 years.
There was a strong correlation between the maximum lifetime BMI and the BMI at the time of survey (Pearson's correlation coefficient r=0.505).

3.2 Help-seeking behavior – self-changers and help-seekers

An analysis of recourse to external support showed that 51% (n=68) of interviewees who fit the inclusion criterion for losing weight (n=133) said that they sought help in response to a relevant open-ended question: 40% of the analysis sample sought help once, and 11% sought help on multiple occasions. At 58% (n=50), women were far more likely to resort to external support than men (38%, n=18).

Insert Table 1 here.

The use of support appears not to be associated with more severe problems. Individuals who took advantage of help (SHS and UHS) showed a maximum lifetime BMI that was slightly higher than the mean, i.e., 35 kg/m^2 in comparison with SSC (successful self-changers) who had a mean BMI of 34 kg/m^2 and USC (unsuccessful self-changers) who had a mean BMI of 33 kg/m^2. If we consider group-specific limits for eating disorders according to the Eating Concern Scale, unsuccessful help seekers (UHS) far exceeded these limits compared with other groups. There was very little difference between successful self-changers and successful help seekers (Table 2).

Insert Table 2 here.

The variations observed in the reported success rate should not be generalized due to possible recruitment bias and insufficient representativeness. We conclude, that self-change from obesity can be shown among cases with severity levels comparable to help-seekers.

What treatment options do help-seekers use?

For obese individuals who sought professional advice to overcome their problem, the most common reason involved 'dietary advice with a view to a change in diet' (56%, n=35 of the 63 responses provided by 54 advice-seekers; multiple responses possible). Dietary advice included online coaches with recommendations for food plans and exercise, specific diet concepts (e.g., Rohner concept and Ducan diet; paid by the individual with no reimbursement from health insurance), the metabolic balance program and Coop coach (79,000 website visits from Switzerland according to a preparatory evaluation by the authors in 2011). Other group-based options, such as Weight Watchers (16%, n=10 responses), were used, as was medical treatment or physiotherapy (14%, n=9 responses). In a group comparison, the UHS group placed greater emphasis on the role of dietary advice (62% of responses, n=21) than the SHS group (48%, n=14), who showed a greater preference for self-help groups (24%, n=7 vs. 9%, n=3). In retrospect, external support was deemed to be helpful almost irrespective of the perceived level of success. All members of the SHS group (n=24) answered 'yes' to the question "Did you find this external support helpful?" (Question 26), whereas only seven of the unsuccessful help-seekers (UHS) (16% of 44 total responses) answered 'no.'

3.3 Motivation for change

The responses to the open-ended question "....what first and foremost prompted you to lose weight? What was your motivation?" (Question 2) revealed three different themes. First, the concern for health was mentioned in 58% of responses (n=136, multiple responses possible), which represents 'negative motivation' to a certain degree. Here, the subjects named a reduction of health risks and an increase in life expectancy as motivational factors. This motivation applied to all groups. The comparison of subgroups based on 'Health' showed that successful self-changers (SSC) and successful help-seekers (SHS) showed equal concern for health at 73% and 74%, respectively, whereas those who failed placed a greater emphasis on health (83% USC and 90% UHS). With regard to "positive motivation," the "improvement in self-image and appearance" (35% of responses, n=83) and "becoming and looking more attractive" were mentioned most frequently (n=32). Compared with the other analysis groups, only the help-seekers who failed placed less value on improving their self-image while, at the

same time, being the most strongly motivated by health-related considerations (32% of responses for the UHS group, 48% for SSC, 43% for SHS and 52% USC).

Based on the concept of identity changes in the context of coping processes proposed by Granberg (2006), the respondents were asked to specify their main expectations and indicate to what extent these hopes had been fulfilled. The open-ended questions included: "What did you above all hope for from weight loss?" (Question 11), "Have your expectations been fulfilled?" and "To what extent have your expectations not been fulfilled?" (Question 12). In contrast to the specific main motivational factor of a change in weight, the open-ended questions assessed more complex expectation patterns, which did not need to coincide with the main change factor. However, the data showed congruent change and hope hierarchies, headed by an improvement in health, followed by 'improvement in self-image.' Lastly, Granberg's theory states that in many cases, the hoped-for 'possible selves' are not achieved through weight loss (Granberg, 2006: 109). Almost all participants who satisfied the success criterion of the study considered their hopes to have been fulfilled. This was true for all help-seekers/successful help-seekers (n=21). In addition, only three of the 37 successful self-changers stated that their weight loss had not produced the desired effect (5 responses, including not slim enough, no greater social acceptance, no gain in attractiveness to a sexual partner, not happier with themselves and generally not more attractive).

Extrinsic, social motivational triggers to solve the problem were mentioned by participants, albeit much less frequently (7% of responses, n=16). This result corresponds to the greater negative impact of perceived social support from the family[1] on successful weight loss, with 16 people (61%) from the group being successful without support (n=26), compared with the group with the highest social support ('5' high level of support, n=57), in which only 44% were successful (25 people). At a psychological level, we can speculate that this finding involves reactance problems, where 75% of respondents were successful only after two or more attempts, and failing 'in public' would imply social withdrawal in this vulnerable phase. At the societal level, involvement in social networks, even with 'good intentions, can act more as a risk factor, i.e., via negative models, access to social occasions for eating and social pressure.

3.4 Everyday coping strategies

What everyday strategies were applied by the self-changers (SSC plus USC) who claimed to have used no external help, and to what extent do help-seekers supplement advice or

[1] Question 61: How much support can you expect from your family in relation to your weight problems? On a scale of 1 to 5, in which 1 is "no support" and 5 "much support," how would you rate this?

treatment with these same strategies? A total of 293 specific everyday strategies (multiple responses possible) were named by the 114 respondents in analysis sample 2 in response to the open-ended question (Question 4), "What specific measures did you take to lose weight?" The strategies reflected a wide range of coping approaches. Following an initial content analysis and coding, the strategies were subdivided into groups: 'Own diets – food-related;' 'Own diets – non-specific;' 'Self-monitoring – individual eating behavior;' 'Mealtime-specific/influencing frequency and/or times of eating;' and 'Sport and exercise.'

With reference to 'food-related diets,' the individual strategy of eating "more fruit and vegetables" (29 responses) was given most frequently, followed by "reduce carbohydrates" (14 responses). The following items were supplied at a similar frequency: "food with reduced fat content" (11 responses), "doing without alcohol" (10 responses), "doing without sugar and sugary drinks" (11 responses) and "food combining" (9 responses).

In the case of 'non-specific own diets,' the most popular strategy was to "halve food intake" (12 responses), followed by "healthy eating" (11 responses) and "reduce portion size" (11 responses).

For 'Self-monitoring,' the most common strategy was "counting calories" (16 responses). For 'Mealtime-specific strategies' subjects, the most frequent strategy was "going without evening meal" (11 responses), followed by "not eating between meals/snacking" (8 responses).

For 'Sport and exercise,' the most common strategy was "endurance sport" (41 responses).

Group comparisons revealed that the priorities for strategies were largely similar. Successful self-changers (SSC) most frequently reported using the strategy of "endurance sport" (15/37 responses), followed by "counting calories" (8/37 responses). Other strategies included "skipping evening meal" (6/37) and eating "plenty of fruit and vegetables" (6/37).

In the group of successful help-seekers (SHS), the strategy of "plenty of fruit and vegetables" was mentioned most frequently (9/23), followed by "endurance sport" (8/23).

Endurance sport was also at the top of the list for the failing groups (USC 9/23 and UHS 9/31). For the unsuccessful self-changers (USC), the second most common strategy was "plenty of fruit and vegetables" (8/23). For the unsuccessful help-seekers (UHS), the other common strategies included "counting calories" (6/31), "plenty of fruit and vegetables" (6/31) and "reduce carbohydrates" (6/31).

Apart from one or two exceptions, direct or indirect individual food-related strategies were frequently mentioned, whereas the influence of social environment was largely ignored.

Group differences were apparent in the choice of specific strategies. For successful help-

seekers, we noted an emphasis and diversification in relation to 'food-related own diets' (mean=1.2 responses); however, this aspect tended to be less important for the successful self-changers (mean=0.8 responses). Despite a similar average number of responses in the four analysis groups, we observed interesting differences among the strategies selected. Compared with the other groups, the successful self-changers placed special emphasis on individual monitoring (counting calories and monitoring) (8 responses).

3.5 Adaptation of coping strategies: Learning from failure and attribution of success

Coping with the problem of obesity is a learning process that involves trial and error. Only 22% of respondents (n=27) stated that they were successful on their first attempt. The presentation of differences between successful and unsuccessful coping attempts allowed us to identify and assess subjective factors for success. After first being asked to provide a list of specific coping strategies (see section 3.3), respondents were next prompted to draw a comparison with the following inquiry: "You have made several attempts to lose weight. What was different about this successful attempt in relation to your previous unsuccessful attempts?" (Question 6).

The differences perceived by self-changers and help-seekers between their unsuccessful and successful coping attempts are listed in Table 3. The differences included planned or unplanned modifications/changes to parameters related to diet or social environment or were individual-specific:

Diet-related modifications to the coping strategy (code 'E' in Table 3) included a change in attitude towards the general importance of slimming diets (e.g., "stopped dieting," "numerous diets in the past, have now decided not to go on any more diets," "gave up on strict diets" and "conventional diets didn't help – God helped me"). On the other hand, subjects specifically 'fine-tuned' their diet by switching to food-related diet profiles based on an awareness of quality. One successful self-healer provided the following response:

"My weight kept on going down, without any effort, with whole meal bread/products. However, not from Migros[2] (has poor products), but Coop has relatively good ones, and so does Aldi. Real Westphalian pumpernickel (tinned) from Mestemacher...Plus, no more alcohol or high-fat meat (only chicken)..."

Another successful patient stated, "... eat more vegetables and spelt pasta instead of normal pasta, basmati rice instead of normal rice."

[2] Migros is the largest food retailer by far in Switzerland, Coop the second and Aldi the third largest

Perceived individual conditions for success (code ‘I’ in Table 3) that ultimately tipped the balance included a strong will and mindfulness coupled with a systematic approach. The responses included statements such as “I got it into my head,” “was determined” and “was more aware and consistent.” Targets were likewise associated with this dimension: “not weigh more than 80 kg...” and “just wanted to fit into size xy...” The responses also included not putting oneself permanently under pressure, i.e., not focusing too much on rules, but listening more to one’s own body and needs: “respond to hunger, stop eating when I'm full...” In this context, we observed a scaling-down of ‘routine monitoring’ (“not weighing myself every day...”) by participants; however, they continued to register any progress as an incentive. Introducing or increasing exercise, e.g., hiking and sport, were included in plans. A change in attitude towards time was considered to contribute to success. This strategy included the time frame expected to achieve the target (“I took my time in losing weight...” and “no effect if weight loss is too quick/too much...”) and a general modification of time management by reducing stress and slowing down (e.g., developing a more regular daily routine).

Changes in social environments were likely to encourage success (code ‘S’ in Table 3). Participants organized personal intervals of spare time (“...took time out for myself, leaving the daily routine behind...”), which was linked to successful diet-related ‘personal experiments:’

“I signed up for a week's fast, eating less and less for 4 days, then nothing at all for 7 days and had only zero-calorie drinks (water, tea). Afterwards I kept on eating slightly more for 4 days, but ate much less than before the fast and have stayed with it. ... Fasting then made it easier for me not to eat many calories anymore.”

Positive life events served as additional reinforcement (“more exercise following birth of daughter…”). Problem-related group effects and the influence of others also resulted in success attributes of a social nature, as illustrated by the comment from the following successful patient:

“Weight Watchers (attended 2-3 times) with points-based system – on my divorce wanted to look ‘hot’ as never before, just to show my ex-husband – wanted to appear more attractive. - Set an example to my two children (it’s also easier to bring them up healthy yourself).”

As shown by the responses in Table 3, the three general coping behaviors could occur in combination, i.e., individual changes with a correction of diet strategies and/or a change in social circumstances (Table 3, column 1).

Insert Table 3 here.

3.6 Weight loss maintenance – perception of stabilization phase

When asked how they managed to achieve lasting weight loss (Table 4), the interviewees primarily mentioned the following success attributes:

(a) Special qualities of individual modification methods in terms of diet and/or exercise, e.g., "Consistently doing without sweets. Change in mindset: Don't fancy sweets anymore;" "Belief that the one-week fast simply changed something in him so he no longer found it difficult to eat less. He had also gone on a fast before but then started eating normally again and so put the weight back on (the 4 kg he had lost while fasting). This time he really wanted to change, wanted to stop eating beyond the limit;" and simply "More exercise."

(b) The perception of the psychological prerequisites and conditions for a long-term solution. This perception is associated with discipline and determination, i.e., individual perseverance, and with the cessation of fixating on the problem while focusing on a long-term solution, i.e., "Not putting oneself constantly under pressure and recognizing that life no longer revolves around eating." These data clearly show aspects of self-efficacy.

(c) Attention was given to the importance of 'constant vigilance' in the sense of personal monitoring (on the lines of "Watching what you eat every day. Not eating too many biscuits at Christmas" or "Constant control (offers a feeling of security) so I am able to look at myself in the mirror").

(d) Anticipation, avoidance of negative consequences and comparison with negative models that were generally health-related. One participant stated, "Health is important. My friends have physical problems, and I don't want any."

(e) Perception of the psychological and social positive consequences of weight loss, which the subjects did not want to jeopardize again. Interviewees stated that life has become easier while mentioning enjoyment in physical exercise and pleasure in their modified eating patterns. One participant stated, "The pleasant feeling you have when you're the right weight was the reason for wanting to maintain it."

There were also reports of positive consequences at a social level. One participant commented on changes in their direct social environment: "She feels so much better than before, also wanting to jump about with her boys and play football. Because she feels great, things are going great for her as well. Weight could be even lower."

The five areas of success attributes described above can also occur in combination. The interviewee quoted below simultaneously emphasized the aspects of constant vigilance, appreciation of one's own achievements and continuous assessment of success and support: "Being honest with yourself. Not resting on your laurels when you have suddenly lost a lot of weight. Being proud of what you have achieved (weight loss). Discipline. Standing in front of the mirror and motivating yourself. Keeping at it. Also rewarding yourself now and then (giving yourself compliments)."

Conversely, an analysis of the reasons for failure provided by the 19 people who lost weight but were not able to maintain the weight loss revealed, as expected, a negative attitude towards the aforementioned success parameters, including dietary and eating patterns, self-efficacy and insufficient discipline. The data show an emergence of new dimensions related to "mental health" (comorbidity problems), including drug side effects, and more diversified social risk factors, such as relationship problems, eating as a social activity within the family and food literacy (Table 4b).

Insert Table 4a and 4b here.

4. Discussion

(Key findings) Our exploratory study is the first report of the 'extra-clinical world' of obese people who have successfully solved their problem without professional help. Furthermore, we compare these independent solutions with a cohort of help-seekers. The main study outcome was the finding that self-change is possible for help-seekers with obesity and is also likely a common occurrence. Second, the coping and maintenance strategies between help-seekers who seek help and self-changers are very similar. Where help-seeking behavior is concerned, the responses regarding utilized assistance showed little overall differentiation and tended to be homogeneous. This finding reveals a lack of success by support providers in their efforts to reach as many possible relevant target groups with diverse support programs (e.g., Suissebalance). Indeed, this variety of support options is not reflected in the responses of the help-seekers we interviewed. Health literacy, computer skills, cost aspects (commercial providers) and the invasive nature of certain support options may represent potential obstacles to target individuals. These circumstances should be further explored in future studies.

Based on the phases of self-change, the motivation phase shows that not only the experience of suffering from obesity related problems put also positive motivating factors influence both

help-seekers and self-changers' while losing weight. These findings are consistent with self-change research in the field of addiction (Klingemann et al., 2010). Ultimately, a predominantly one-dimensional perception of success that revolves around diet appears, if anything, to be detrimental to weight loss.

With regard to everyday coping strategies, using external support does not uniformly result in greater health literacy, as evidenced by the very similar strategies adopted by self-changers. We observed group differences in the strategy preferences for 'Own food-related diets.' The diet-specific factors mentioned by successful help-seekers were more varied than other groups. The successful help-seekers also had a better knowledge of food. This finding suggests that the help-seekers learned from the dietary advice they were given and used the advice to create change. In contrast, the successful self-changers placed special emphasis on monitoring. The importance of continuous evaluation and self-monitoring was extensively verified in other areas of self-change research (Klingemann et al., 2010). The fundamental question addressed in our study was which specific, individualized, low-threshold offers of help can support successful change.

When subjects were asked about the key reason for success after repeated attempts, self-change was clearly a progressive, open-ended learning process that goes beyond a mere discourse of relapse, which is detrimental to the motivation to overcome obesity. A group comparison showed that the success attributions of successful self-changers and successful help-seekers are very similar. These attributions fall under three categories: perception of individual conditions for success, diet-related modification strategies and changes in the social environment. In addition to a focus on the individual and their diet, context-based, situational incorporation of the change process is also important. This finding was emphasized in earlier self-recovery studies of eating behavior (Tinker & Tucker, 1997b).

With regard to the maintenance of weight loss, both groups referred to five stabilization parameters: characteristics of the modified success method, a long-term awareness of discipline and determination, constant vigilance and self-monitoring, not jeopardizing what has been achieved and above all, the experience and perception of positive consequences felt by the individual and encountered at a social level. Where efforts at stabilization failed, problems involving comorbidities and social relationships were contributing factors.

(Relevance of research– implications) The similarities in coping methods adopted by help-seekers and self-changers indicate that the same determinants of individual change can be influenced at a professional level and are also found outside the sphere of therapy;

furthermore, these coping methods can be successful in isolation or through interaction. DiClemente described a similar phenomenon with self-recovery from alcohol addiction: "Natural or self-directed change is the fundamental process where we should be looking for mechanisms of change. It is this change process that interacts with any efforts to assist individuals... thus, it seems overly treatment-centric to view mechanisms of change as residing in the treatments rather than in the drinkers" (DiClemente, 2007, p. 195).

(Relevance to practical application) What lessons can be learned from our data at the level of policy and professional advice? The coping methods observed in both groups closely correspond with the recommendations of major meta-analyses and randomized controlled trials (RCTs) (Laddu et al., 2011; Carney et al., 2009; Ayyad & Andersen, 2000). There are three pillars for lasting weight loss: a) flexible management of food intake combined with a healthy, balanced diet; b) sufficient exercise and c) an intrinsic motivation to control body weight. Confirmed by scientific findings, these factors offer the desired effect and, as such, play a central role in the conservative treatment for obesity. Thus, all study participants were in possession of the required knowledge, regardless of whether they took advantage of professional advice. This level of knowledge may be attributed to the lasting effects of public prevention and awareness campaigns designed to provide public health-oriented strategies (exercise and diet) to the inhabitants of Switzerland. This assumption is furthermore supported by the specific finding that the majority of successful help-seekers named endurance sport as a strategy that promised success (41%), while physical activity was mentioned by only 29% of failing subjects. However, the lack of differentiation between self-changers and help-seekers may be due to subjective interpretation and imprecise definition of the concept 'use of external professional help.' Indeed, this is a potential limitation of the study.

(Limitations and future research priorities) Our exploratory study is first step towards closing the research gap into eating disorders and obesity. With regard to the validity of our findings, there are limitations that should be considered in future studies. In methodological terms, this includes the retrospective design of the survey as opposed to prospective studies, the restriction of open-ended questions during telephone interviews with a limited narrative nature as opposed to qualitative interviews (possibly face to face) and the inability to recruit younger age groups via selected media sources. Furthermore, the comparability of self-changers and help-seekers regarding the severity of their problem is limited. Thus, certain

group differences (e.g., selection of an increased level of physical activity as a coping strategy) may be due, at least partially, to background characteristics not subject to further control (e.g., somatic comorbidities and general state of health). Lastly, self-change cannot be adequately mapped with a cross-sectional survey. A longitudinal study in conjunction with qualitative in-depth interviews is needed.

(Policy outlook) Research into the natural history of self-harming and deviant behavior is well documented, especially in the field of addiction (Klingemann et al., 2010; Sobell, 2007). To date, a paucity of studies on these behaviors as related to mental health and eating disorders exists, despite epidemiological studies that highlight the significant burdens resulting from such problems (WHO, 2016). A few exceptions can be found (e.g., Stevenson, 1961 regarding psychoneuroses; Böker & Brenner, 1983; 1984 regarding the development of schizophrenia; and Vandereycken, 2012 regarding the general view of eating disorders). There is little evidence regarding the level of support available and its appeal and effectiveness in what is known as the 'supply system.' With regard to the latter, the focus primarily falls on a small number of severe cases, which is also found in the conventional treatment for addiction. This lack of research (apart from political barriers put up by the various professions involved) may be due the type of methodological problems observed in other fields of self-change research, e.g., access to hard-to-reach populations, the mapping of the complex course of lives and the validity of self-reporting. Moreover, it is difficult to observe the change process and the perception of success over lengthy periods of time. Lastly, clear-cut outcome criteria, such as 'abstinence' from addiction, cannot be applied to studies on obesity.

Paradigm shifts and a move towards rapprochement are beginning to emerge in Switzerland. Initially, discussion in the field of addiction revolved around replacing the institutionalized segmentation of politics, treatment and policy using an integrated public health approach (steering group "Challenge: Addiction"/"Herausforderung Sucht" 2010). The following stage of the debate focused on the incorporation of different problem areas in the general concept of non-communicable diseases (NCD) (www.bag.admin.ch/ncd). Hopefully, this will encourage a 'multisector' diffusion of research results on a variety of issues, such as comorbidity, multiple drug use and food addiction (Gearhardt et al., 2011), and facilitate their interpretation within the wider framework of self-change. The results presented here, supply information on everyday techniques and problem-solving strategies, which can then be used to customize support options for obesity and make them more cost-efficient.

Given the health and cost related consequences of obesity, support providers in the treatment system require evidence-based scientific findings to assess properly the potential acceptance and efficiency of their weight-loss programs. User-friendly stepped care approaches, minimal interventions and the question ‘what do we learn from self-changers?’ will be pivotal addressing these challenges.

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*Table 1: Recourse to external help**

Success criterion (remain below 90% of life-time maximum weight at least in last three years)	**Recourse to external help***	
	No, no recourse to help	**Yes, recourse to help**
	% (n)	**% (n)**
Not fulfilled	43 (28)	65 (44)
Fulfilled	57 (37)	35 (24)

* Open-ended question 23: "Have you resorted to (external) help in order to gain control of your weight problems?"

Table 2: The Eating Concern Scale in relation to the limit value for eating disorders in the analysis sample*

Study groups	**Eating Concern Mean cut-off for atypical eating disorders**		**Total**
	Not attained: below 2.6	**Attained: 2.6 and more**	
	% (n)	% (n)	% (n)
Successful without help (= successful self-changers)	76 (28)	24 (9)	100 (37)
Failing without help (= failing self-changers)	82 (23)	18 (5)	100 (28)
Successful with help (= successful changers)	71 (17)	29 (7)	100 (24)
Failing with help (= unsuccessful patients)	66 (29)	34 (15)	100 (44)

*[1] The five items in the 'Eating Concern' subscale (see (Hilbert and Tuschen-Caffier 2006)) deal with the following individual issues: 'Preoccupation with food, eating or calories', 'Fear of losing control of eating', 'Eating in secret', 'Guilt about eating', 'Social eating'. In a norm population the mean value for the 'Eating Concern' subscale is 0.76. A score of 22.3 in a study sample of obese persons is an indicator for an eating disorder. A score of 22.6 shows a highly significant correlation with the presence of binge eating (Hilbert, de Zwaan et al. 2012).

Table 3 Subjective, comparative assessment of conditions for success in the context of previous failures in the case of successful self-changers and patients

You have made several attempts to lose weight. What was different about this successful attempt in relation to your previous unsuccessful attempts? (Question 6)	
Successful self-changers	
E	She eats almost no dairy products now
E	Weight kept on going down, without any effort, with wholemeal bread/products. But not from Migros (has poor products), but Coop has relatively good ones, and so does Aldi. Real Westphalian pumpernickel (tinned) from Mestemacher, wholemeal bread from Sylt (available in Konstanz and at Aldi. Plus: No more alcohol or high-fat meat (only chicken). He says, losing weight is simple: just eat wholemeal food.
E +I	No idea. Interaction of several factors: Change in diet and more exercise. Probably also more regular daily routine following retirement (previously a freelance translator).
I	You should only eat when hungry.
I	Greater awareness of diet.
I	Keep to the change in diet including after losing weight.
E	I used to go on extreme diets*.
E	Ate less, and low-fat wherever possible*.
E+I	Many diets in the past. Decided in 1988: "no more diets, develop a healthy eating pattern". At the same time more exercise through hiking.
I	Was no yo-yo effect.
I	He doesn't eat after 3.00 pm.
I	Weights on lower legs (weights attached with Velcro from Manor for aerobic exercises), he also did the rest on other attempts.
I	Lack of exercise.
I	She got it into her head. She was convinced by it. She never wants to weigh 83 kg again.
I	Because she didn't put herself under pressure.
I	Previous attempts were too theoretical, and the will that was there.
I	Kept it up consistently (it's like stopping smoking – you really have to want it. Change in attitude to life necessary)
I	He looked into it in a scientific way. He focused more on his body.
I	More discipline.
I+E	She was determined, and she eats more vegetables and spelt pasta instead of normal pasta; basmati rice instead of normal rice*.
I	Will, took time out for me, leaving the daily routine behind. Wanted to lose weight due to apnoea and back problems (apnoea has gone, backache hasn't).
I+E+S	Not putting myself under pressure, stopped dieting and more exercise following birth of daughter.
I+S	Far more motivation. Plus: didn't have any more children (generally heavy after pregnancy and was difficult to lose weight again/had a problem with eating/emotional eating).
E	Yo-yo effect with previous diets, ???
I	She responds to hunger, stops eating when full. She used to eat to cope with stress.
	He signed up for a week's fast, eating less and less for 4 days, then nothing at all for

I+S	7 days and only had zero-calorie drinks (water, tea). Afterwards he kept on eating slightly more for 4 days, but ate much less than before the fast and has stayed with it. Nowadays he doesn't like eating more at all. Fasting then made it easier for him not to eat many calories any more.*
Successful patients	
E+I	She eats a much healthier diet, lots of vegetables. Follows a strict plan. Stress at work.
I+E	Don't have to eat any more I don’t like. I allow myself more time, can eat what does me good and what I like (didn't know before what I liked).
I	Knowledge about food, variety.
I	She has now set herself a limit, doesn't want to weigh more than 75 kg*.
I	More sport.
I+E	The issues here were more to stop making mistakes in diet, to discover the reason for constantly eating and to learn to understand that emotional eating isn't a solution.
I	Not weigh yourself every day. She didn't put herself under pressure to lose weight. She took her time in losing weight. Just wanted to fit into size 44.
I	Conventional diets didn't help. God helped me.
I	The diet that feels right. Managed to maintain weight. Slowly lost weight. In the past: lost weight too quick / too much, then yo-yo effect.
I	She arrived at the point where she didn't want to weigh more than 80 kg. High level of self-motivation, it is easier if you have a method. Motivated by experiencing success. Combination of diet and sport.
S+I	Support from group and family. Portioning out food.
S	My wife helped as well.
E+S	I couldn't complete my first attempt as they wouldn't let me have the diet (at the canteen of Tiefenauspital Bern).
I+S	Proper food, never felt hungry, was also able to eat with other people.
I	Good info from obesity centre. Knowledge about diet and mind/mental strength. Fitness programme.
I+S	"Weight Watchers (attended 2-3 times) with points-based system – on her divorce wanted to look 'hot' as never before, just to show her ex-husband – wanted to appear more attractive. - Set an example to her two children (it's also easier to bring them up healthy yourself).

Table 4a: Subjective attributions for the maintenance/stabilisation of success

"What in your opinion is the most important reason allowing you to maintain your new weight?" (Question 10)	
Successful self-changers	
Meth	3-4 portions of fruit and vegetables a day and exercise. Go easy on wine and beer. Only drink water.
Meth	Wholemeal bread, no alcohol, almost no meat (fish and chicken).
Meth	Consistently do without sweets. Change in mindset: Don't fancy sweets any more.
Meth	Keep to diet, not give in (sweet treats only in moderation), exercise ("is the key").
Meth	That she eats everything, but not as much as she used to.
Meth	A total change in diet.
Meth	Keep to the change in diet.
Meth	She only eats as much as she needs.
Meth/ psy	He believes that the one-week fast simply changed something in him so he no longer found it difficult to eat less. He had also gone on a fast before, but then started eating normally again and so put the weight back on (the 4 kg he had lost while fasting). This time he really wanted to change, wanted to stop eating beyond the limit.
Meth	Balanced diet and becoming more active.
Mon	Watching what you eat every day. Not eating too many biscuits at Christmas.
Mon	She is more aware of what she eats and no longer eats high-fat products.
pos	Trying to look out for oneself; sport and lots of relaxation exercises (against stress).
Meth	More exercise.
Meth	More sport and a healthier diet.
Meth	Healthier diet and a bit of sport.
Meth	That she keeps up the sport.
Meth	Regular exercise. Enjoyment in food.
pos	You stay more active when you're lighter, and that was motivation enough.
pos	That you keep up the sport, and there's two of you, someone who joins in and gives you motivation.
psy	No longer putting herself under pressure.
neg/ pos	Health is important; his friends have physical problems, and he doesn't want any. Ideal of beauty.
Meth	Option of keeping it up.
pos	Attitude that life no longer revolves around eating. No more emotional eating.
pos	The pleasant feeling you have when you're the right weight was the reason for wanting to maintain it.
pos	Only one attempt. The most important reason was probably experiencing major success in 2008 (when started trying to lose weight) --> great psychological boost.
psy	Determination.
psy	Because she worked on her mindset, and today she is determined.
neg	Health reasons.
Meth	Understanding the relationships of diet, psychology of eating. Keeping to eating pattern, filling up with water.
neg/	Health, he does a lot of sport because he's no longer so young and wants good

pos	bones later on. And he wants to look good.
neg/ pos	To avoid health risks, and the enjoyment in life he has; he also wants to take part in physical activity with his daughter, be a role model to her.
psy	Discipline, vanity.
pos	Self-acceptance (I am happy with how I am now, not be so hard on myself).
pos	Love.
pos	The many compliments encouraged her to keep it up.
Successful patients	
Meth	That I only eat things I can digest (according to blood group diet).
Meth	Plenty of vegetables, no more cravings.
pos/ Meth	Savours food. Not much, just a little, e.g. cake.
Meth	Eat less.
Meth	Knowledge of food.
Meth	A complete change in diet. No more fat, not fry food in it.
Meth	Healthy diet and exercise.
Mon	Constant control (offers a feeling of security) so I am able to look at myself in the mirror.
Mon	Eat with greater awareness.
Meth	Lasting change in diet and sport. She eats 3 times a day and not between meals.
pos	That she really started to enjoy exercising and noticed that it does her good after a hard day to give her mind an airing as well.
psy	Discipline.
psy	Strong determination necessary.
Meth	No hunger (very low-calorie diets never work in the long run).
pos/ psy	Because she feels happy with her weight, and because she doesn't put herself under pressure.
psy	Self-control.
pos/ Mon	Being honest with yourself. Not resting on your laurels when you've suddenly lost a lot of weight. Being proud of what you've achieved (weight loss). Discipline. Standing in front of the mirror and motivating yourself. Keeping at it. Also rewarding yourself now and then (giving yourself compliments).
psy	That I kept it up.
pos	Realisation that life is effectively easier. Change in diet (knowledge about it + application).
pos	Feeling better thanks to sport and diet.
pos	That she feels so much better than before, also wanting to jump about with her boys and play football. Because she feels great, things are going great for her as well. Weight could be even lower.

Key:
'Meth': reference to the coping method; 'Mon': reference to individual vigilance and monitoring; 'pos': positive effects perceived, incentives; 'neg': avoidance of negative consequences.

Table 4b Subjective attributions for failure

What in your opinion was the key reason preventing you from after all maintaining this weight (until now)? (Question 8)
Successful self-changers
Didn't manage to incorporate the change in diet in lifestyle. Not something I "had" to do, but "wanted" to do. Continue enjoying eating. Combination of being sensible when out shopping/cooking food and getting exercise.
Because she ate more again and no longer starved herself.
Because she already had too many fat cells as a child and didn't get rid of them. She needs food to cope with feelings of anger, sadness.
I had to work more.
No partner (no flatmates, isolated), living alone, frustration, migraine, visual disturbances.
Drugs (Remeron).
Side effects of medication.
Unsuccessful patients
Fell back into old habits.
She is not very disciplined.
Mental problems.
My mental health (bipolar), addicted to sugar.
As soon as she lost weight, she eased off, did less sport and concentrated less on diet.
Mental (is bipolar) --> mood swings also affecting weight. Taking medication.
Because she tried to lose weight by herself, would like join a group as would then also be more motivated.
Personal circumstances, family, separation.
She had a separation behind her; is an emotional eater, psychological problems.
No longer went to Weight Watchers, started eating between meals.
She didn't get any support from her boyfriend and fell back into old habits, wasn't strong enough.
Because at the end she wasn't determined enough to keep up the ParaMedi method.